

RGTA OTR4120, a heparan sulfate mimetic, is a possible long-term active agent to heal burned skin.

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Abstract

Burn-related skin fibrosis leads to loss of tissue function and hypertrophic scar formation with damaging consequences for the patient. There is therefore a great need for an efficient agent to treat burned skin. We report that ReGeneraTing Agent (RGTA) reduces burn-induced skin alteration. The tissue-regenerating effect of RGTA OTR4120 was evaluated after 1-6 days and after 10 months in a rat skin burn model. This effect was also examined in vitro using fibroblasts isolated from control and 6-day-old burned skins. We measured production of dermal collagen I, III, and V and activities of metalloproteinases 2 and 9 (MMP-2 and MMP-9). Ratio of collagen III over collagen I production increased 6 days after the burn, because of a decrease in collagen I production. After 10 months, ratio of collagen III over collagen I in burn sites was still increased compared with control skin, because of an increase in collagen III production. Both abnormalities were corrected by OTR4120. OTR4120 increased pro- and active MMP-2 and MMP-9, compared with healthy and burned controls and therefore accelerated remodeling. Similar data were obtained with cultured fibroblasts from healthy and burned skins. OTR4120 enhanced healing in short- and long-term after burns, reducing the formation of fibrotic tissue, and then represents a potential agent to improve burned skin healing.

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